

CLAIMS:

1. A system for selecting and controlling electromechanical valves, the system comprising:
  - 5 an internal combustion engine having at least a first and second group of cylinders, at least one group having a cylinder with at least an electromechanical valve; and
  - a controller operate a group of valves in said
  - 10 first cylinder group that is different from a group of operating valves in said second cylinder group, during a cycle of said engine.
2. The system of Claim 1 wherein said first and second
- 15 cylinder groups are located in different banks of a V engine.
3. The system of Claim 1 wherein said first and second cylinder groups have two electromechanical valves in each
- 20 cylinder.
4. The system of Claim 1 wherein said first and second cylinder groups have three electromechanical valves in
- 25 each cylinder.
5. The system of Claim 1 wherein said first and second cylinder groups have four electromechanical valves in
- each cylinder.
- 30 6. The system of Claim 1 wherein said first and second cylinder groups have five electromechanical valves in
- each cylinder.

7. The system of Claim 1 wherein said first and second cylinder groups combust mixtures having different air-fuel ratios.
- 5 8. The system of Claim 1 wherein said first and second cylinder groups have different spark timing.
9. The system of Claim 1 wherein said first and second cylinder groups induct different engine air amounts.
- 10 10. The system of Claim 1 wherein said first and second cylinder groups have different valve lift heights.
11. The system of Claim 1 wherein said first and second  
15 cylinder groups valve timing is different.

12. A system for selecting and controlling electromechanical valves, the system comprising:

an internal combustion engine having a first and second group of cylinders, said first group of  
5 cylinders having valves operating in a first configuration and said second group of cylinders having valves operating in a second configuration, said cylinders in said first and second group each having a cylinder head with at least two regions, with at least  
10 two electromechanical valves, said valves in different regions; and

a controller to select at least a first valve for each cylinder of said first cylinder group, located in at least one region of said first and second region,  
15 and to select at least a second valve for each cylinder of said second cylinder group, located in another region of said first and second regions, and to operate at least one cylinder from each of said selected first and second cylinder groups with said selected valves, without  
20 operating non-selected valves, during respective cycles of said cylinder groups.

13. The system of Claim 12 wherein said first and second cylinder groups are located in different banks of a V  
25 engine.

14. The system of Claim 12 wherein said first and second cylinder groups have three electromechanical valves in each cylinder.  
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15. The system of Claim 12 wherein said first and second cylinder groups have four electromechanical valves in each cylinder.

16. The system of Claim 12 wherein said first and second cylinder groups have five electromechanical valves in each cylinder.
- 5 17. The system of Claim 12 wherein said first and second cylinder groups combust mixtures having different air-fuel ratios.
18. The system of Claim 12 wherein said first and second  
10 cylinder groups have different spark timing.
19. The system of Claim 12 wherein said first and second cylinder groups induct different engine air amounts.
- 15 20. The system of Claim 12 wherein said first and second cylinder groups valve timing is different.
21. The system of Claim 12 wherein said first and second cylinder groups have different valve lift heights.
- 20 22. A computer readable storage medium having stored data representing instructions executable by a computer to control an internal combustion engine of a vehicle, said storage medium comprising:
- 25 instructions to select and operate a group of valves in said first cylinder group that is different from the group of operating valves in said second cylinder group, during a cycle of said engine.
- 30 23. The method of Claim 22 wherein said first and second cylinder groups are operated over at least two consecutive cycles of said engine.